

SUMMARY OF OBSERVATIONS MADE IN 1975  
CONCERNING ALLEGED HUMAN ILLNESS PROBLEMS OF PERSONS LIVING, WORKING, OR  
GOING TO SCHOOL ON PROPERTY NEAR A COTTON FIELD RECENTLY  
SPRAYED WITH A DEFOLIANT

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For three years previous to 1975, there have been variable numbers of complaints about foul odors and a number of instances of reported human illnesses characterized by wheezing, coughing, eye irritation, headaches, and nausea of persons who have spent some time near a cotton field within 48 hours after a defoliant has been applied. Over the past four years, a sizable number of these episodes have been investigated.

None of these episodes has been associated with the individual use of sodium chlorate or organic arsenic as defoliants.

The episodes have been associated with the use of DEF alone, Folex alone, DEF and Paraquat in combination, Folex and Paraquat in combination, and Paraquat alone. The use of Paraquat alone has not led to odor complaints. The most serious incidents have been associated with DEF and Folex applied separately, and particularly with DEF. This may be related to the much greater volume of sales for DEF than for Folex. The chemical with the offending odor is butyl mercaptan, which is a breakdown product of each of these similar pesticides.

The application of DEF near a school or housing subdivision, particularly during a period of area-wide air stagnation, has led to the most complaints. Prior to the beginning of the 1975 defoliation season, we reviewed the past history of alleged human illness problems and we were prepared to conduct some intensive follow-ups of reported human illnesses when they occurred.

Prior to the production of DEF and Folex for use for the 1974 and 1975 seasons, separate office hearings were held with the registrant of each of these products concerning the need to reduce the foul odor of each product prior to sale. Substantial progress was made prior to the 1974 season and nearly complete success was achieved for each of the two products placed in use at the beginning of the 1975 season. This was attested to by various staff members of our Department who have been studying this problem for three years and who evaluated the odors of the new DEF and Folex being poured into mix tanks preparatory to use.

Immediately after these two products were sprayed upon cotton in 1975, there was usually little significant foul odor. However, after one day of sunshine on a cotton field that had been sprayed with DEF or Folex, some foul odor was perceptible to a number of observers to either product. This noticeable odor usually persisted for another 24 hours. This odor in 1975 was modest in intensity as compared to odor problems of one and two years before for each product. However, it became evident that when as much as 1,000 or more acres in adjacent areas were sprayed at the same time with either product, there was a marked undesirable odor to the area for up to 48 hours thereafter.

An advisory approach at correction of the problem was followed in September 1975 concerning use of DEF, Folex, and Paraquat. In each county in California where cotton is grown, the Agricultural Commissioner for that county sent an advisory letter to the following licensees operating in his county: Agricultural Pest Control Operator, Agricultural Pest Control Adviser, and Pesticide Dealer. Each advisory letter provided the following information:

1. DEF, Folex, and Paraquat should not be applied near schools while in session. Such applications, if necessary, should be made after schools close for the weekend.
2. Avoid application of DEF, Folex, and Paraquat during periods of air stagnation.
3. Application of DEF, Folex, and Paraquat near residential areas should be made when the air movement is expected to be away from the residential area for 24 hours. Their use near residential areas should be avoided altogether if possible.
4. When using a combination of defoliant, check labeling on each product concerning proper dosage and any restrictions on use.

During the 1975 cotton defoliation season, there were very few odor or illness complaints--the fewest in 5 years. This sudden decrease is attributed to: (1) Reasonably good efforts by the registrants of DEF and Folex to market products with a minimal level of undesirable odor, (2) impact of the advisory letter from County Agricultural Commissioners to appropriate license holders, and (3) the lack of any long series of days of air stagnation problems at the height of the defoliation season.

Current plans for the 1976 season involve sending a similar letter in early September. The message may be amended to suggest that "near" residential areas and schools would usually mean no closer than 1,000 feet.

In 1976, we will conduct some additional foliage and air sampling studies in and near defoliation sites and investigate odor and alleged associated human illness complaints.